CLAIMS

1.   A polarization component comprising at least two reflective polarizer layers and a retardation layer disposed between the reflective polarizer layers, wherein

the two reflective polarizer layers are reflective circular polarizer layers that selectively transmit one of clockwise circularly polarized light or counterclockwise circularly polarized light while selectively reflecting the other, wherein

the two reflective circular polarizer layers have selective reflection wavelength bands for selective reflection of polarized light, the bands overlapping each other at least partially, and

the retardation layer satisfies conditions of Formulae (I) and (II) below:

$R \leq (\lambda/10)$ (I)

$R' \geq (\lambda/8)$ (II)

wherein in Formulae (I) and (II), λ denotes a wavelength of light entering the retardation layer;

R denotes an absolute value of retardation (in–plane retardation) in a X–axis direction and in a Y–axis direction with respect to incident light from a Z–axis direction (normal direction), where the X–axis direction is a direction showing a maximum refractive index within the plane of the retardation layer (in–plane slow axis direction), the Y–axis direction is a direction perpendicular to the X–axis direction within the plane of the retardation layer (in–plane fast axis direction), and the Z–axis direction is a thickness direction of the retardation layer and perpendicular to the X–axis direction and the Y–axis direction;

R' denotes an absolute value of retardation between a X'–axis direction and a Y'–axis direction with respect to incident light from a direction inclined by at least 30° with respect to the Z–axis direction, where the X'–axis direction is an axial direction within a plane of the retardation layer perpendicular to the incidence direction of the incident light inclined by at least 30° with respect to the Z–axis direction, and the Y'–axis direction is a direction perpendicular to the incidence direction and to the X'–axis direction.

2.   The polarization component according to claim 1, wherein circularly polarized light beams passing through the two reflective circular polarizer layers rotate in a same direction.

3.   A polarization component comprising at least two reflective circular polarizer layers and a half wavelength plate disposed between the reflective circular

polarizer layers, wherein the two reflective circular polarizer layers have selective reflection wavelength bands for selective reflection of polarized light, and the selective reflection wavelength bands overlap each other at least partially.

5   4.   The polarization component according to claim 3, wherein circularly polarized light beams passing through the two reflective circular polarizer layers rotate in directions opposite to each other.

    5.   The polarization component according to claim 1 or 3, wherein an
10   overlapping region of the selective reflection wavelength bands in the two reflective circular polarizer layers comprises a wavelength range of 540 to 560 nm.

    6.   A polarization component comprising, at least, two reflective polarizer layers and an intermediate layer disposed between the reflective polarizer layers, wherein
15   the two reflective polarizer layers are reflective linear polarizer layers that selectively transmit one of linearly polarized light beams crossing each other at right angles while selectively reflecting the other,

        the two reflective linear polarizer layers have selective reflection wavelength bands for selective reflection of polarized light, the bands overlapping each other at
20   least partially,

        the intermediate layer comprises a single optical layer or a laminate of at least two optical layers, and the intermediate layer has a function of transmitting an incident linearly polarized light beam while changing or not changing the polarization direction, according to the incidence direction,
25   the two reflective linear polarizer layers are disposed at an angle so as to have in–plane slow axis directions for transmitting a light beam that is included in incident linearly polarized light and that enters in a direction (normal direction) perpendicular to the incidence surface while efficiently reflecting a light beam entering from an oblique direction.
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    7.   A polarization component comprising at least two reflective linear polarizer layers, a retardation layer and two quarter wavelength plate layers disposed between the reflective linear polarizer layers, wherein

        one of the quarter wavelength plate layers is disposed between one of the
35   reflective linear polarizer layers and the retardation layer, and the other quarter wavelength plate layer is disposed between the other reflective linear polarizer layer and the retardation layer,

the two reflective linear polarizer layers have selective reflection wavelength bands for selective reflection of polarized light, the selective reflection wavelength bands overlapping each other at least partially,

the quarter wavelength plate layer positioned on one surface of the retardation layer has an in–plane slow axis that forms an angle of 40° to 50° with respect to a polarization axis of the reflective linear polarizer layer positioned on the same side of the retardation layer,

the quarter wavelength plate layer positioned on the other surface of the retardation layer has an in–plane slow axis that forms an angle of –40° to –50° with respect to a polarization axis of the reflective linear polarizer layer on the same side of the retardation layer,

an angle formed by the in–plane slow axes of the two quarter wavelength plate layers is determined arbitrarily, and

the retardation layer satisfies the conditions of Formulae (I) and (III) below:

$$R \leq (\lambda/10) \tag{I}$$

$$R' \geq (\lambda/4) \tag{III}$$

wherein in Formulae (I) and (III), λ denotes a wavelength of light entering the retardation layer;

R denotes an absolute value of retardation (in–plane retardation) in a X–axis direction and in a Y–axis direction with respect to incident light from a Z–axis direction (normal direction), where the X–axis direction is a direction showing a maximum refractive index within the plane of the retardation layer (in–plane slow axis direction), the Y–axis direction is a direction perpendicular to the X–axis direction within the plane of the retardation layer (in–plane fast axis direction), and the Z–axis direction is a thickness direction of the retardation layer and perpendicular to the X–axis direction and the Y–axis direction;

R' denotes an absolute value of retardation between a X'–axis direction and a Y'–axis direction with respect to incident light from a direction inclined by at least 30° with respect to the Z–axis direction, where the X'–axis direction is an axial direction within a plane of the retardation layer perpendicular to the incidence direction of the incident light inclined by at least 30° with respect to the Z–axis direction, and the Y'–axis direction is a direction perpendicular to the incidence direction and to the X'–axis direction.

8.   A polarization component comprising at least two reflective linear polarizer layers and two quarter wavelength plate layers disposed between the reflective linear polarizer layers, wherein

the two reflective linear polarizer layers have selective reflection wavelength bands for selective reflection of polarized light, the selective reflection wavelength bands overlapping each other at least partially,

an in-plane slow axis of one of the quarter wavelength plate layers forms an angle of 40° to 50° with respect to a polarization axis of the reflective linear polarizer layer positioned on the same side of the polarization component,

an in-plane slow axis of the other quarter wavelength plate layer forms an angle of –40° to –50° with respect to a polarization axis of the reflective linear polarizer layer on the same side of the polarization component,

an angle formed by the in-plane slow axes of the two quarter wavelength plate layers is determined arbitrarily, and

the quarter wavelength plate layers satisfy respectively the condition of Formula (IV) below:

$$Nz \geq 2.0 \qquad\qquad (IV)$$

where $Nz = (nx - nz)/(nx - ny)$,

wherein, in formula (IV), nx, ny and nz denote respectively refractive indices in a X-axis direction, a Y-axis direction and a Z-axis direction in the quarter wavelength plate layers, where the X-axis direction is a direction showing a maximum refractive index within the plane of the quarter wavelength plate (in-plane slow axis direction), the Y-axis direction is a direction perpendicular to the X-axis direction within the plane of the quarter wavelength plate layer (in-plane fast axis direction), and the Z-axis direction is a thickness direction of the quarter wavelength plate layer and perpendicular to the X-axis direction and to the Y-axis direction.

9.   A polarization component comprising at least two reflective linear polarizer layers and a half wavelength plate disposed between the reflective linear polarizer layers, wherein

the two reflective linear polarizer layers have selective reflection wavelength bands for selective reflection of polarized light, the selective reflection wavelength bands overlapping each other at least partially,

the in-plane slow axis of the half wavelength plate forms an angle of 40° to 50° with respect to a polarization axis of one of the reflective linear polarizer layers, and also forms an angle of –40° to –50°C with respect to a polarization axis of the other reflective linear polarizer layer, and

the half wavelength plate satisfies Formula (V) below:

$$Nz \geq 1.5 \qquad\qquad (V)$$

where Nz = (nx −nz)/(nx −ny)

and, in Formula (V), nx, ny and nz denote respectively refractive indices in a X–axis direction, a Y–axis direction and a Z–axis direction in the half wavelength plate, where the X–axis direction is a direction showing a maximum refractive index within the plane of the half wavelength plate (in–plane slow axis direction), the Y–axis direction is a direction perpendicular to the X–axis direction within the plane of the half wavelength plate (in–plane fast axis direction), and the Z–axis direction is a thickness direction of the half wavelength plate and perpendicular to the X–axis direction and to the Y–axis direction.

10.   The polarization component according to any of claims 6 to 9, wherein the overlapping region of the selective reflection wavelength bands in the two reflective linear polarizer layers comprises a wavelength range of 540 to 560 nm.

11.   The polarization component according to claim 1 or 7, wherein the retardation layer comprises a cholesteric liquid crystal compound fixed in a planar alignment state, and the selective reflection wavelength band of the retardation layer is present in a wavelength region other than a visible light region of 380 nm to 780 nm.

12.   The polarization component according to claim 1 or 7, wherein the retardation layer comprises a rodlike liquid crystal compound fixed in a homeotropic alignment state.

13.   The polarization component according to claim 1 or 7, wherein the retardation layer comprises a discotic liquid crystal compound fixed in a nematic phase or columnar phase alignment state.

14.   The polarization component according to claim 1 or 7, wherein the retardation layer comprises a biaxially–aligned non–liquid crystal polymer.

15.   The polarization component according to claim 1 or 7, wherein the retardation layer comprises an inorganic layered compound having a negative uniaxiality, the inorganic layered compound is in an alignment state where an optical axis direction of the retardation layer is fixed in a direction (normal direction) perpendicular to the plane.

16.   The polarization component according to claim 1 or 3, the polarization component further comprising at least one additional layer having a function of a quarter wavelength plate at least in a front direction, the layer is disposed outside the reflective circular polarizer layer that is one of the two reflective circular polarizer layers and positioned at the visible side.

17.   The polarization component according to claim 16, the polarization component further comprising an absorptive dichroic polarizing plate, the absorptive dichroic polarizing plate is disposed outside the additional layer having a function of a quarter wavelength plate at least in the front direction.

18.   The polarization component according to any of claims 1, 3, and 6–9, wherein the respective elements are laminated through translucent layers of an adhesive or a pressure–sensitive adhesive.

19.   A polarization light source comprising a light source, a reflective layer, and a polarization component according to any of claims 1, 3, and 6–9, wherein the polarization component is laminated on the light source through the reflective layer.

20.   A liquid crystal display apparatus comprising the polarization light source according to claim 19, and further a liquid crystal cell being laminated on the polarization light source.

21.   An image display apparatus comprising a polarization component according to any of claims 1, 3, and 6–9.